

### **REMARKS**

Reconsideration of the pending application is requested.

#### **In the Claims**

Applicant has amended claim 4 to correct the informalities objected to by the Examiner. Approval is requested.

#### **Rejections under Sec. 103**

The Examiner rejected claims 4-6 and 10-12 under 35 USC Sec. 103(a) as being unpatentable over Tada in view of Daniel and ordinary skill in the art. Applicant respectfully traverses the Examiner's rejection.

The invention is directed to an acoustic wave device, which can be used to propagate acoustic waves in communications equipment. The device has a piezoelectric substrate mainly containing lithium tantalate, an interdigital transducer with a conductor formed on the substrate, and a reflector including a conductor formed on the substrate. To achieve lower loss characteristics and wider band, the device varies its features of cut angle ( $\theta$ ), standardized electrode thickness  $h/\lambda$  and duty ratio  $w/p$  in settings which are unobvious to those skilled in the art.

#### **The Tada Reference**

Tada's surface rotation is a fixed Y-X angle at  $36^\circ$ , which does not teach the general conditions of a variable range of Y-X angles. Therefore, with respect to the claimed ranges of surface rotation angles, Applicant respectfully disagrees with the Examiner's statement that the ranges would have been discoverable by one ordinarily skilled in the art based on the fixed value disclosed by Tada.

#### **The Daniel Reference**

Daniel discloses another surface wave transducer comprising a semiconductor substrate upon which is deposited a thin piezoelectric film. However, the disclosed range for  $h/\lambda$  of Daniel is for a ZnO substrate, not the  $\text{LiTaO}_3$  substrate used in Tada. The characteristics of ZnO are quite different from those of  $\text{LiTaO}_3$ , and the

characteristics of an acoustic wave apparatus depend on those of the substrate. As such, the  $h/\lambda$  range used for a ZnO substrate is not necessarily appropriate to an acoustic wave apparatus having a  $\text{LiTaO}_3$  substrate. Additionally, Daniel does not disclose a ratio of electrode thickness ( $h$ ) to wavelength ( $\lambda$ ); rather, Daniel discloses a ratio of ZnO film thickness to wavelength (Daniel, col. 3, line 49).

Therefore, there can be no suggestion or motivation to one skilled in the art to modify the  $h/\lambda$  range for Tada's  $\text{LiTaO}_3$  by using the  $h/\lambda$  range provided by Daniel's ZnO, in order to construct the claimed invention.

Finally, even if such modification could be made, the combined device still would not disclose the invention, since the surface rotation for the combined device would still be Tada's fixed angle at  $36^\circ$ .

#### Conclusion

In conclusion, claims 4-6 and 10-12 are not obvious over Tada in view of Daniel and ordinary skill in the art. The Examiner's rejections should be withdrawn, and allowance of the claims granted.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully Submitted,  
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Attachments

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope to: Commissioner of Patents and Trademarks, Washington

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(Date of deposit)

BIRCH, STEWART, KOLASCH & BIRCH, LLP

Jordan R. Paul  
(Signature)

3.31.03  
(Date of Signature)